CLAIMS:

1. A method for updating at least a portion of a bi-stable display in a transition from a current image state to a subsequent image state, comprising:

accessing data defining a previous image state that precedes the current image state;

accessing data defining at least one voltage waveform (600, 620, 640, 660; 700, 720, 740, 760) according to the previous image state, the current image state, and the subsequent image state; and

driving the at least a portion of the bi-stable display (310) from the current image state to the subsequent image state according to the at least one voltage waveform such that the at least a portion of the bi-stable display is driven from the current image state to an optical rail state via at least one reset pulse (RE1, RE2) of the at least one voltage waveform, and subsequently from the optical rail state to the subsequent image state via a driving pulse (DR) of the at least one voltage waveform, and an energy of at least a portion of the at least one voltage waveform is set based on the previous image state.

2. The method of claim 1, wherein:

the at least a portion of the at least one voltage waveform whose energy is set based on the previous image state comprises the at least one reset pulse (RE1, RE2).

3. The method of claim 1, wherein:

the at least a portion of the at least one voltage waveform whose energy is set based on the previous image state comprises the drive pulse (DR).

4. The method of claim 1, wherein:

the driving comprises driving the at least a portion of the bi-stable display such that the at least a portion of the bi-stable display is driven from the current image state to the optical rail state, which is the optical rail state closest to the subsequent image state, via the at least a first reset pulse (RE1, RE2).

5. The method of claim 1, wherein:

the at least one reset pulse (RE1, RE2) causes charged particles in the bi-stable display to simultaneously occupy one of the extreme positions corresponding to one of the optical rail states.

6. The method of claim 1, wherein:

the accessing data defining the at least one voltage waveform comprises accessing data defining the at least one voltage waveform from among data defining a plurality of available voltage waveforms that are associated with the transition from the current image state to the subsequent image state; and

each of the plurality of available voltage waveforms is associated with a respective different previous state.

7. The method of claim 1, wherein:

the accessing data defining the at least one voltage waveform comprises accessing data defining the at least one voltage waveform from among data defining a plurality of available voltage waveforms that are associated with the transition from the current image state to the subsequent image state; and

at least one of plurality of available voltage waveforms is associated with a plurality of different previous states.

8. The method of claim 1, wherein:

the driving comprises driving the at least a portion of the bi-stable display such that a further reset pulse (RE2) of opposite polarity to the at least one reset pulse (RE1), and preceding the at least one reset pulse (RE1), is applied to the at least a portion of the bi-stable display.

9. The method of claim 1, wherein:

the driving comprises driving the at least a portion of the bi-stable display such that shaking pulses (S1) are applied to the at least a portion of the bi-stable display.

10. The method of claim 9, wherein:

the driving comprises driving the at least a portion of the bi-stable display such that the shaking pulses (S1) are applied to the at least a portion of the bi-stable display between the at least one reset pulse (RE1) and the driving pulse (DR).

11. The method of claim 1, wherein:

the at least one reset pulse (RE1, RE2) has an additional reset duration.

12. The method of claim 1, wherein:

the bi-stable display comprises an electrophoretic display.

13. A program storage device tangibly embodying a program of instructions executable by a machine to perform a method for updating at least a portion of a bi-stable display in a transition from a current image state to a subsequent image state, the method comprising:

accessing data defining a previous image state that precedes the current image state;

accessing data defining at least one voltage waveform (600, 620, 640, 660; 700, 720, 740, 760) according to the previous image state, the current image state, and the subsequent image state; and

driving the at least a portion of the bi-stable display (310) from the current image state to the subsequent image state according to the at least one voltage waveform such that the at least a portion of the bi-stable display is driven from the current image state to an optical rail state via at least one reset pulse (RE1, RE2) of the at least one voltage waveform, and subsequently from the optical rail state to the subsequent image state via a driving pulse (DR) of the at least one voltage waveform, and an energy of at least a portion of the at least one voltage waveform is set based on the previous image state.

14. An electronic reading device, comprising:

a bi-stable display (310); and

a control (100) for updating at least a portion of the bi-stable display in a transition from a current image state to a subsequent image state by: (a) accessing data defining a previous image state that precedes the current image state, (b) accessing data defining at least one voltage waveform (600, 620, 640, 660; 700, 720, 740, 760) according to the previous image state, the current image state, and the subsequent image state, and (c) driving the at least a portion of the bi-stable display (310) from the current image state to the subsequent image state according to the at least one voltage waveform such that the at least a portion of the bi-stable display is driven from the current image state to an optical rail state via at least one reset pulse (RE1, RE2) of the at least one voltage waveform, and subsequently from the optical rail state to the subsequent image state via a driving pulse (DR) of the at least one voltage waveform, and an energy of at least a portion of the at least one voltage waveform is set based on the previous image state.

15. A method for providing at least one voltage waveform for updating at least a portion of a bi-stable display in a transition from a current image state to a subsequent image state, comprising:

providing respective different voltage waveforms for achieving the transition from the current image state, which is preceded by a previous image state, to the subsequent image state;

determining respective image errors when driving the at least a portion of the bi-stable display (310) from the previous image state to the current image state, and, using the respective different voltage waveforms, from the current image state to the subsequent image state; and

selecting one of the respective different voltage waveforms (600, 620, 640, 660; 700, 720, 740, 760) that is associated with the smallest of the respective image errors for subsequent use in driving the at least a portion of the bi-stable display (310) from the current image state to the subsequent image state after the at least a portion of the bi-stable display (310) is driven from the previous image state to the current image state.

16. The method of claim 15, wherein:

the providing the respective different voltage waveforms comprises providing the respective different voltage waveforms with reset pulses (RE1, RE2) having different energies.

17. The method of claim 15, wherein:

the providing the respective different voltage waveforms comprises providing the respective different voltage waveforms with drive pulses (DR) having different energies.

18. The method of claim 15, wherein:

the bi-stable display comprises an electrophoretic display.

19. A program storage device tangibly embodying a program of instructions executable by a machine to perform a method for providing at least one voltage waveform for updating at least a portion of a bi-stable display in a transition from a current image state to a subsequent image state, the method comprising:

providing respective different voltage waveforms for achieving the transition from the current image state, which is preceded by a previous image state, to the subsequent image state;

determining respective image errors when driving the at least a portion of the bi-stable display (310) from the previous image state to the current image state, and, using the respective different voltage waveforms, from the current image state to the subsequent image state; and

selecting one of the respective different voltage waveforms (600, 620, 640, 660; 700, 720, 740, 760) that is associated with the smallest of the respective image errors for subsequent use in driving the at least a portion of the bi-stable display (310) from the current image state to the subsequent image state after the at least a portion of the bi-stable display (310) is driven from the previous image state to the current image state.

20. An electronic reading device, comprising:

a bi-stable display (310); and

a control (100) for providing at least one voltage waveform for updating at least a portion of a bi-stable display in a transition from a current image state, which is preceded

by a previous image state, to a subsequent image state by: (a) providing respective different voltage waveforms for achieving the transition from the current image state to the subsequent image state, (b) determining respective image errors when driving the at least a portion of the bi-stable display (310) from the previous image state to the current image state, and, using the respective different voltage waveforms, from the current image state to the subsequent image state, and (c) selecting one of the respective different voltage waveforms (600, 620, 640, 660; 700, 720, 740, 760) that is associated with the smallest of the respective image errors for subsequent use in driving the at least a portion of the bi-stable display (310) from the current image state to the subsequent image state after the at least a portion of the bi-stable display (310) is driven from the previous image state to the current image state.